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**Summary Flow Diagrams of the
Pulp and Paper MACT Standard
(40 CFR part 63, subpart S)**

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NOTE: The following eleven diagrams provide only a summary of the requirements of the standards and do not supersede the standards in any manner. Compliance determinations are based on the standards published in the Code of Federal Regulations.

FIGURE 1. MILL APPLICABILITY (§63.440)

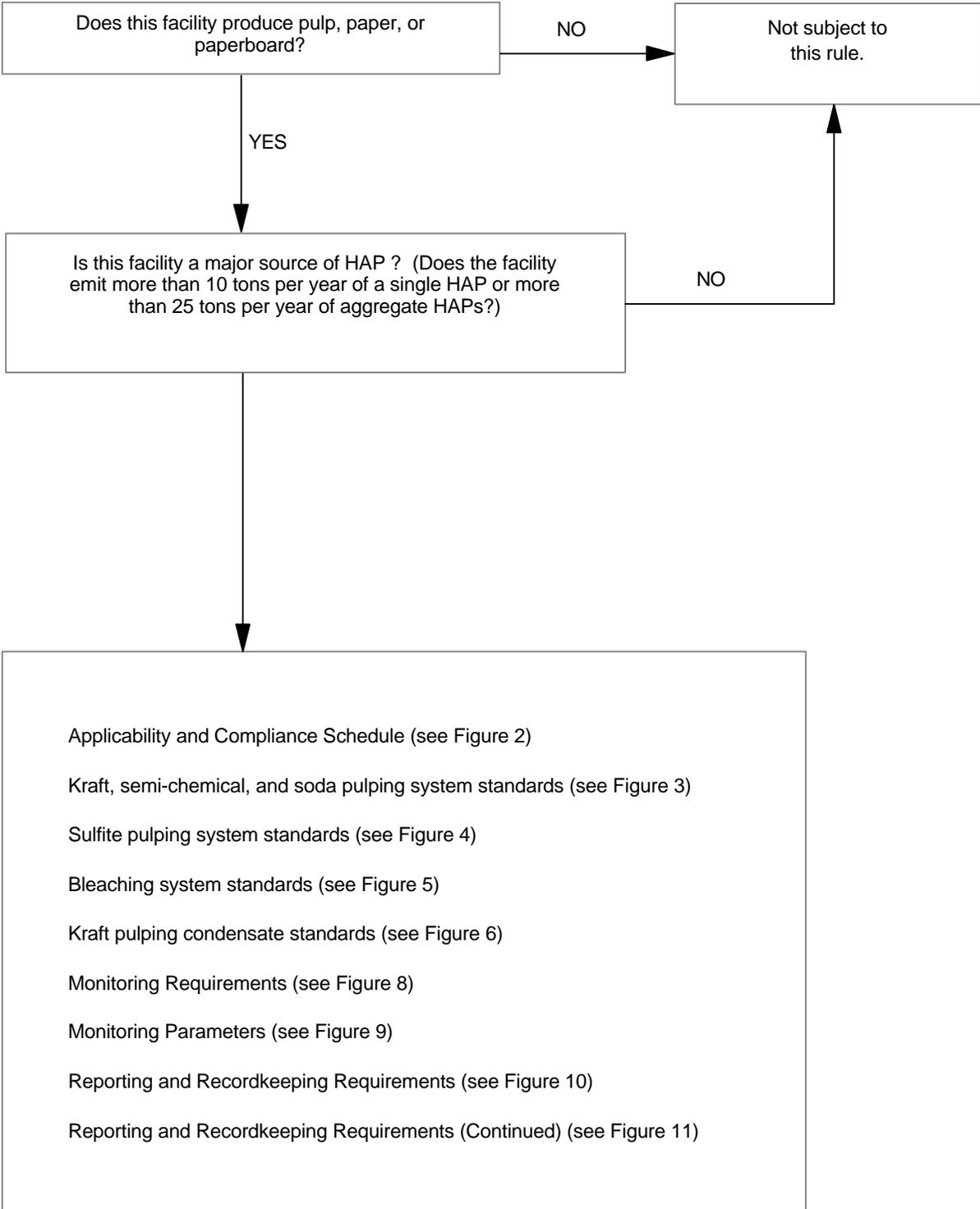
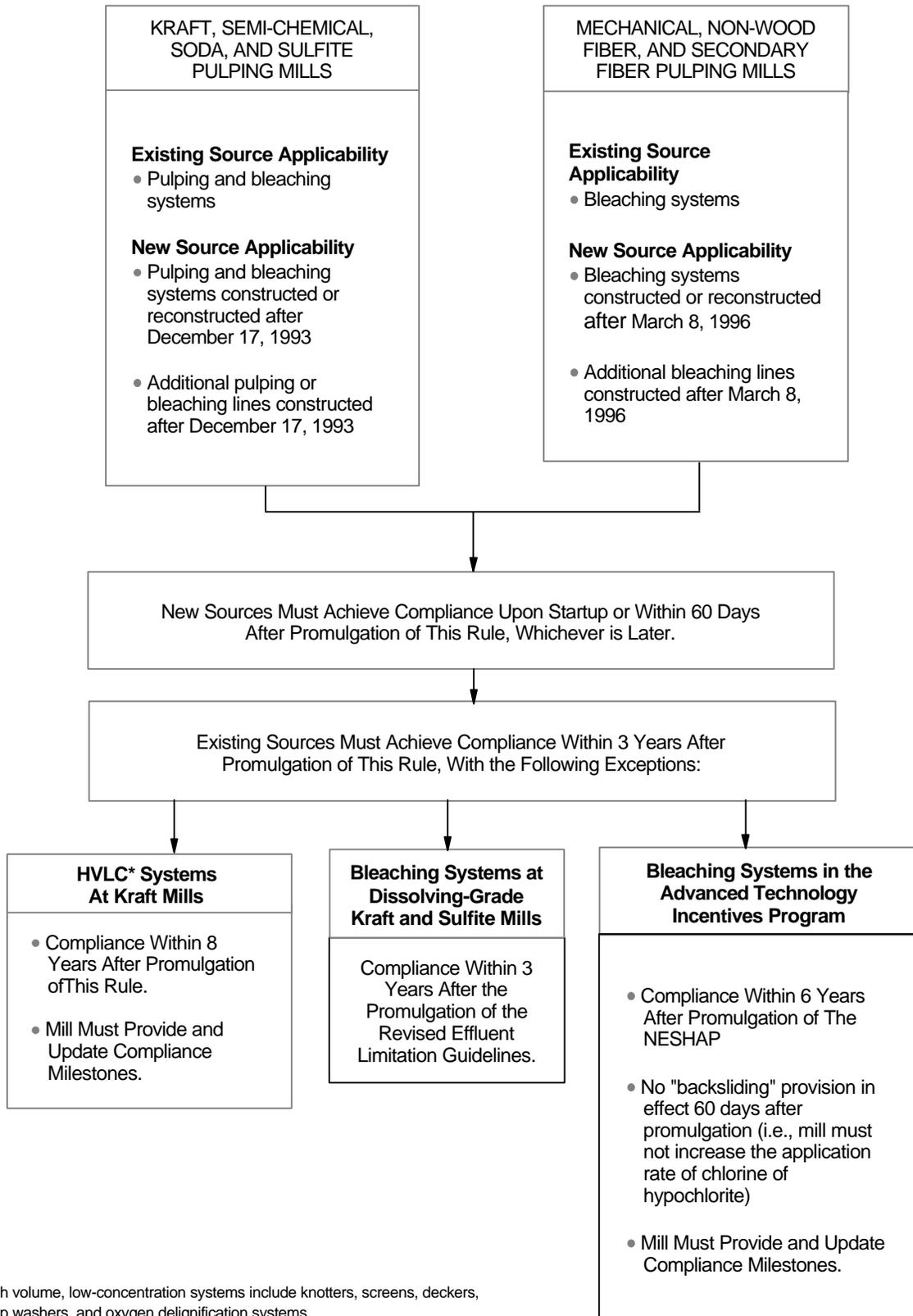
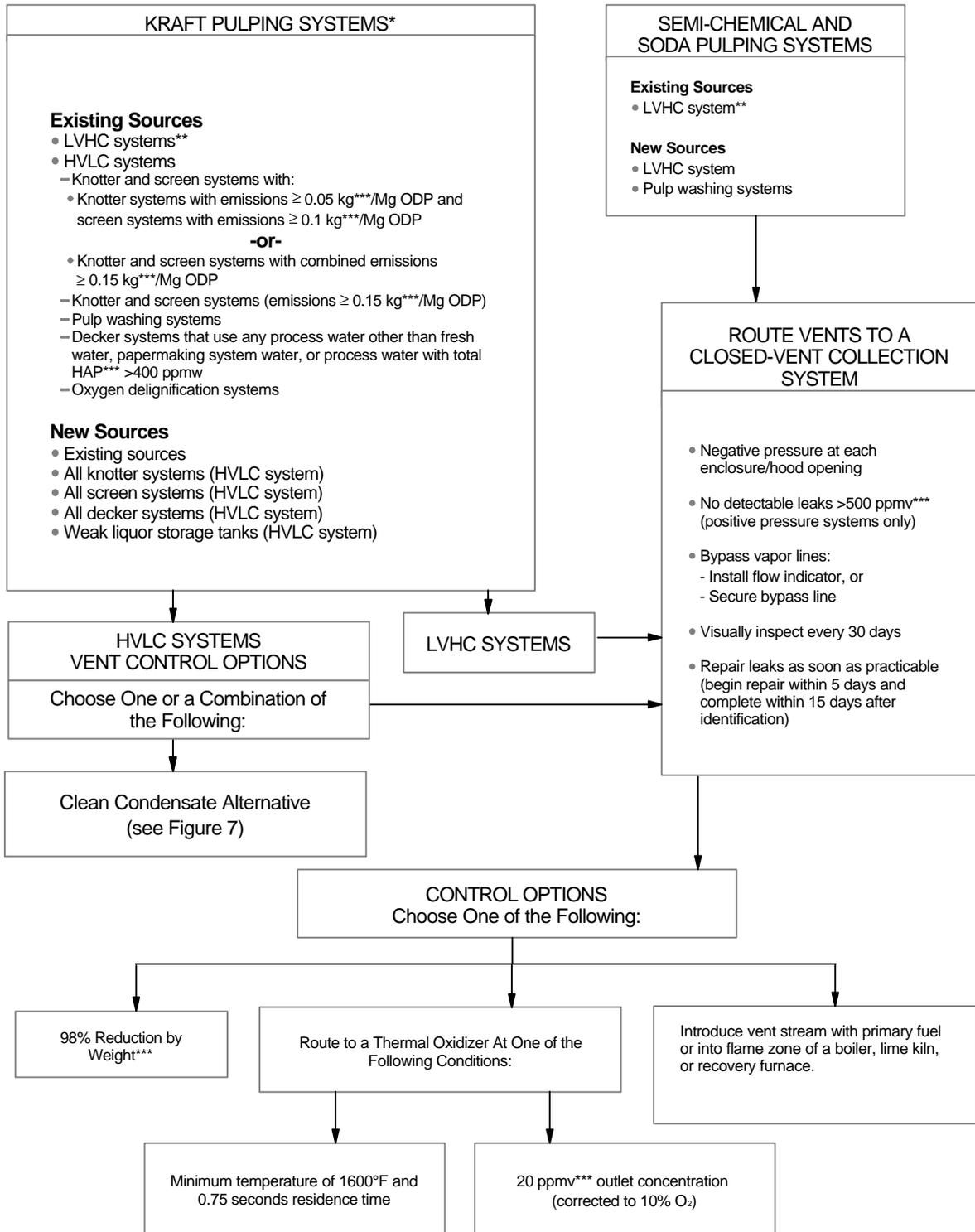


FIGURE 2. APPLICABILITY AND COMPLIANCE SCHEDULE (§63.440)



* High volume, low-concentration systems include knotters, screens, deckers, pulp washers, and oxygen delignification systems.

FIGURE 3. PULPING SYSTEM STANDARDS FOR KRAFT, SEMI-CHEMICAL, AND SODA PULPING MILLS (§63.443, §63.450)

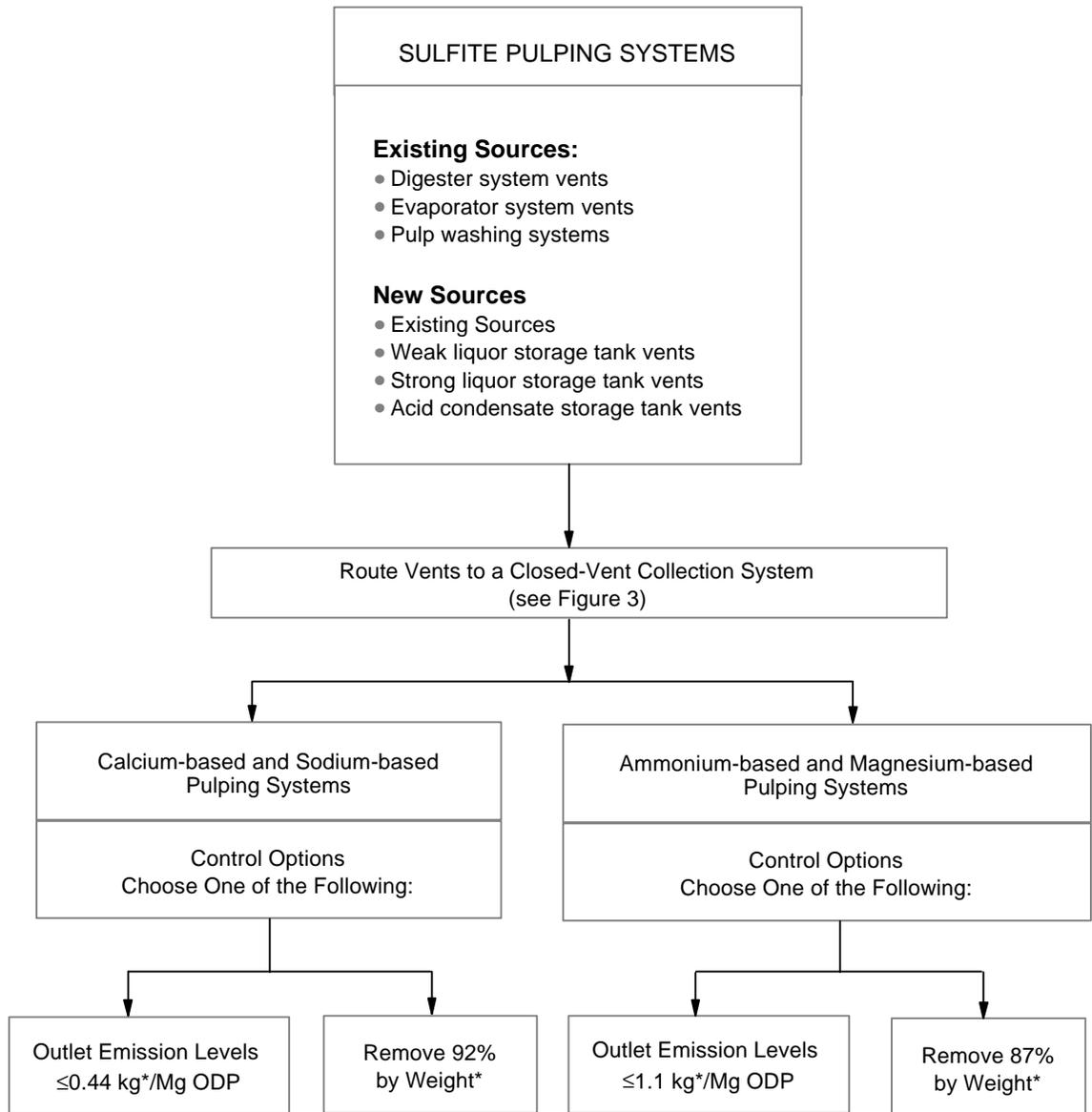


* Kraft pulping systems must also control pulping process condensates (see Figure 6).

** LVHC systems include digesters, turpentine recovery, evaporators, steam stripper systems, and any other equipment serving the same function as those previously mentioned.

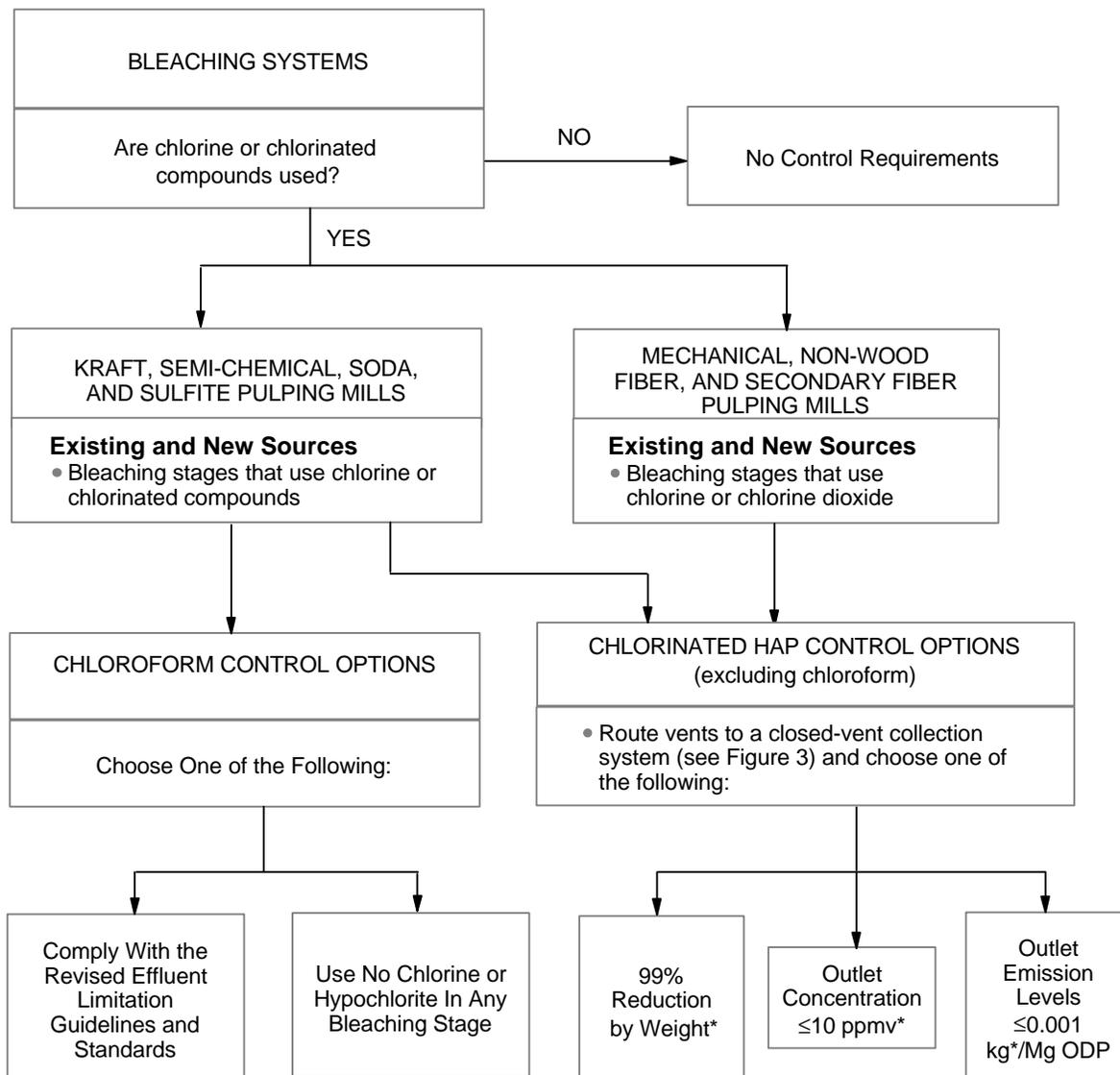
*** All measurements as total HAP or methanol.

FIGURE 4. PULPING SYSTEM STANDARDS FOR SULFITE PULPING MILLS (§63.443, §63,450)



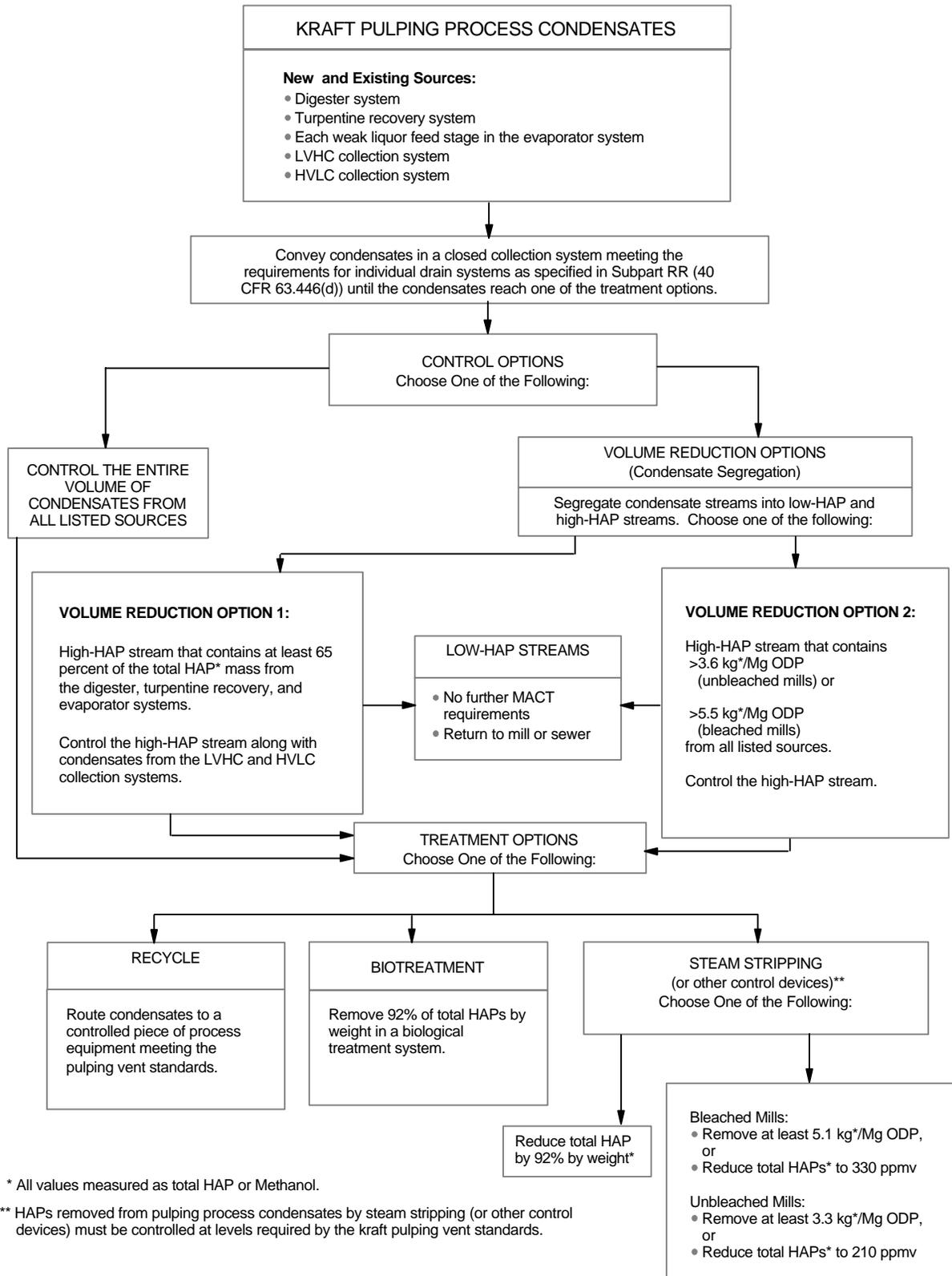
* All values measured as total HAP or Methanol. Outlet emission level and percent reduction requirements must account for HAP releases from vents, condensates, and wastewater from control devices used to reduce HAP emissions.

FIGURE 5. BLEACHING SYSTEM STANDARDS (§63.445)



* All values measured as total chlorinated HAP or chlorine.

FIGURE 6. KRAFT PULPING PROCESS CONDENSATE STANDARDS (§63.446)



* All values measured as total HAP or Methanol.

** HAPs removed from pulping process condensates by steam stripping (or other control devices) must be controlled at levels required by the kraft pulping vent standards.

FIGURE 7. CLEAN CONDENSATE ALTERNATIVE (§63.447)

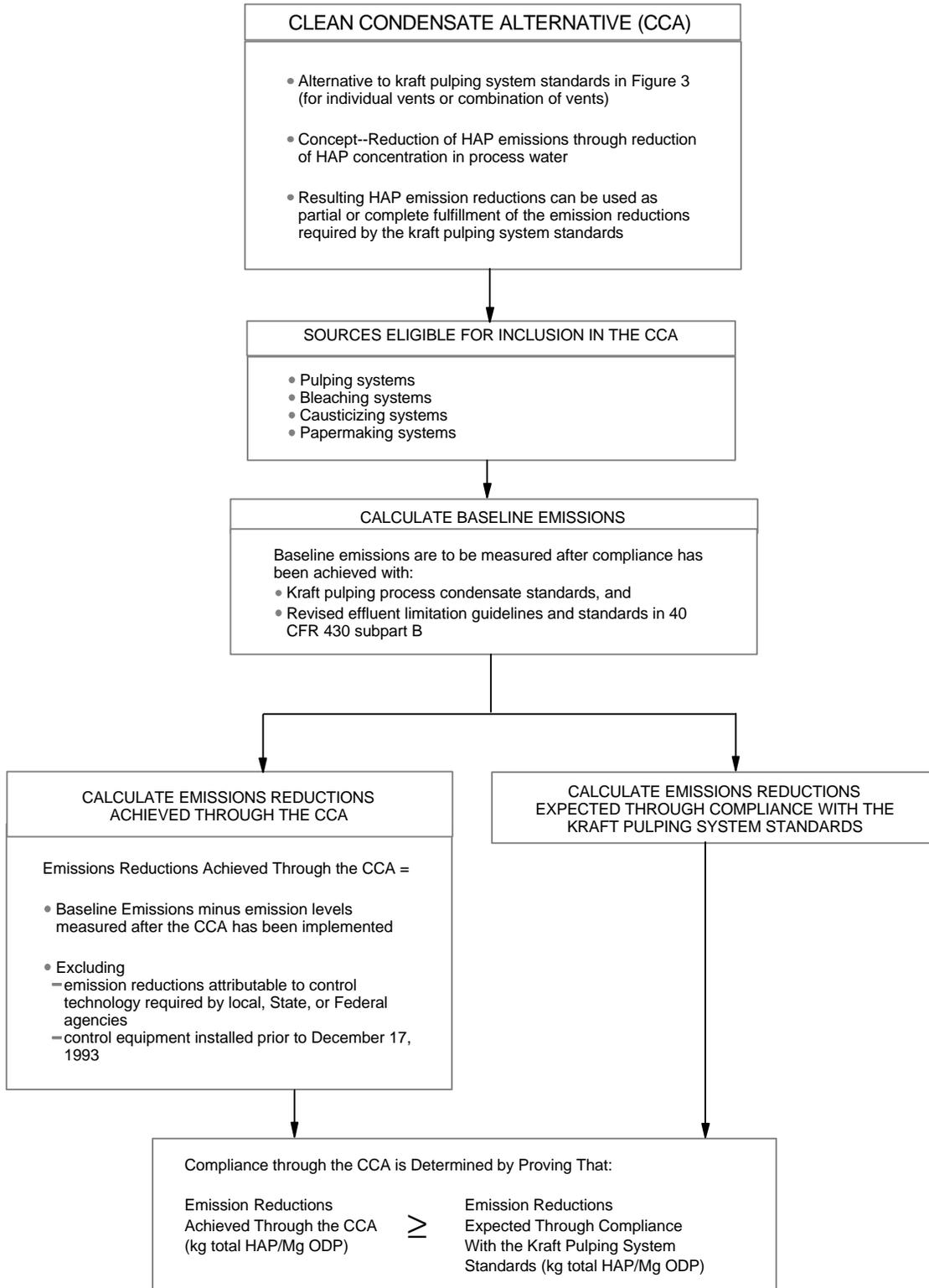


FIGURE 8. MONITORING REQUIREMENTS (§63.453)

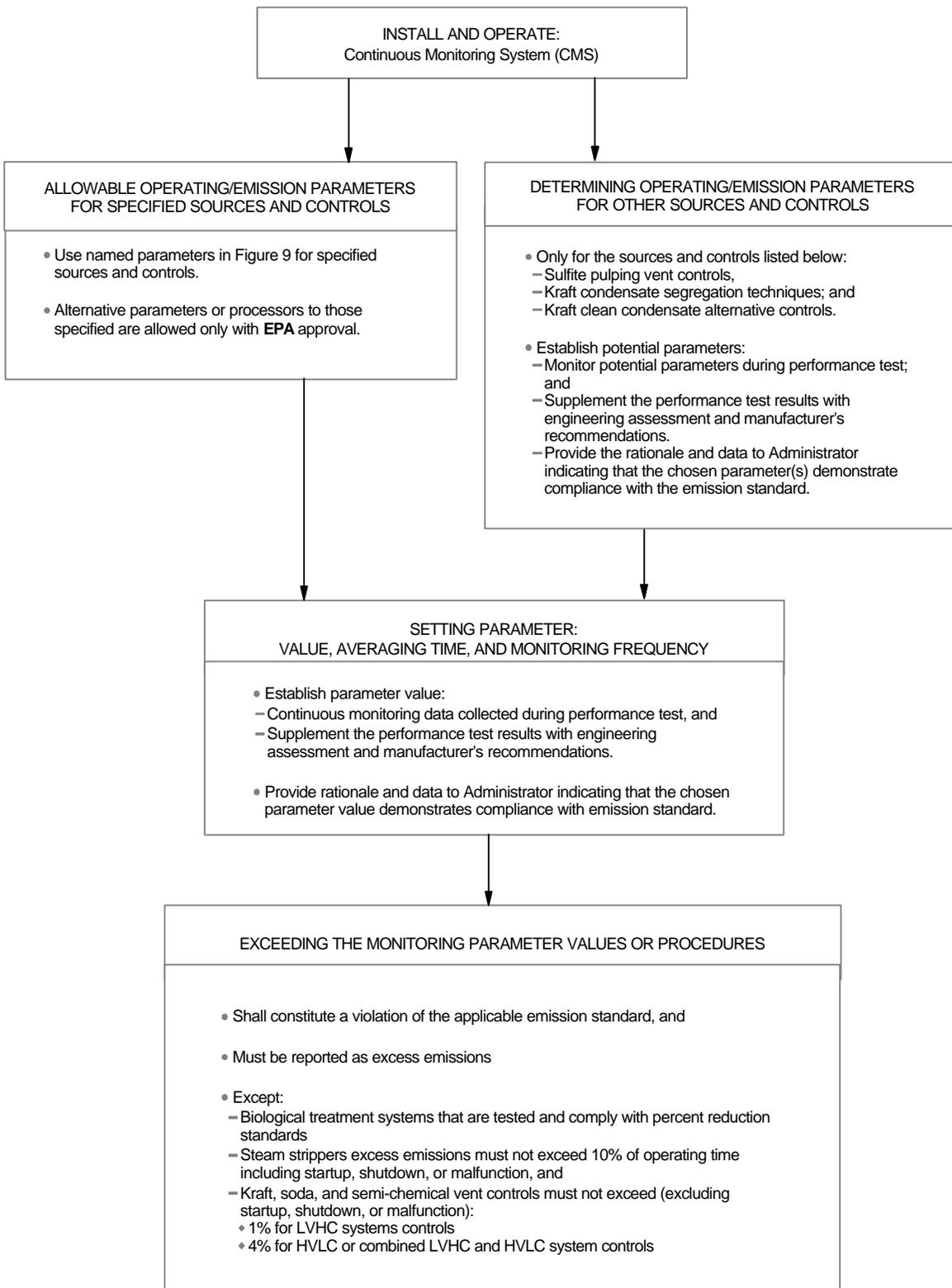


FIGURE 9. MONITORING PARAMETERS (§63.453)

<p>PULPING SYSTEMS</p>	<p>Thermal Oxidizer</p> <ul style="list-style-type: none"> • For compliance with the 98 percent reduction option; measure, maintain, and record fire box temperature with a CMS* • For compliance with the 20 ppmv outlet option; measure, maintain, and record outlet HAP concentration with a CMS • For compliance with the 1600°F design temperature option; measure, maintain, and record fire box temperature with a CMS • No monitoring requirements for pulping vent system vents routed to a power boiler, lime kiln, or recovery furnace
<p>BLEACHING SYSTEMS</p>	<p>Bleaching Vent Scrubbers</p> <ul style="list-style-type: none"> • Measure and record the following parameters using a CMS: <ul style="list-style-type: none"> – pH or oxidation/reduction potential of scrubber effluent, – gas scrubber inlet flowrate, and – gas scrubber liquid influent flowrate -or- – Chlorine outlet concentration <p>Systems participating in the extended compliance time of the Effluent Incentives Program:</p> <ul style="list-style-type: none"> • Monitor chlorine and hypochlorite application rates (kg/Mg ODP) during extended compliance period
<p>PULPING PROCESS CONDENSATES</p>	<p>Steam Strippers</p> <ul style="list-style-type: none"> • Measure and record the following parameters using a CMS: <ul style="list-style-type: none"> – Process water feed rate, – Steam feed rate, and – Column feed temperature -or- – Outlet methanol concentration <p>Biological Treatment Systems</p> <ul style="list-style-type: none"> • Daily monitoring <ul style="list-style-type: none"> – Outlet soluble BOD₅ – Mixed liquor volatile suspended solids – Horsepower of aerator unit(s) – Inlet liquid flow – Liquid temperature – Collect and store inlet and outlet grab samples • Quarterly Monitoring <ul style="list-style-type: none"> – Every 1st quarter: demonstrate percent reduction of total HAP – Remaining quarters: percent reduction of total HAP (methanol can be measured if a relationship between total HAP and methanol reduction is established and maintained at levels as less than those measured during the 1st quarter)
<p>CLOSED VENT SYSTEMS -and- CLOSED (Condensates) COLLECTION SYSTEMS</p>	<p>Every 30 days:</p> <ul style="list-style-type: none"> • Visual inspection • Inspect bypass line valve or closure mechanism <p>Initially and Annually</p> <ul style="list-style-type: none"> • Demonstrate no detectable leaks at positive pressure portions • Demonstrate negative pressure at enclosure openings

* CMS = Continuous Monitoring System

FIGURE 10. RECORDKEEPING AND REPORTING REQUIREMENTS (§63.454, §63.455)

INITIAL NOTIFICATION REPORT	NOTIFICATION OF COMPLIANCE STATUS REPORT
<p><u>Existing Major Sources:</u> <i>Within 1 year after becoming subject to rule</i></p> <p><u>New or Reconstructed Major Sources:</u> <i>No later than 120 days after initial startup</i></p> <ul style="list-style-type: none"> • Name & address of owner or operator. • Address of the source. • Identification of the rule and source's compliance date. • Description of operations, design capacity, and HAP emission points. • Statement of whether a major or area source. • Notification of intent to construct or startup date for new or reconstructed sources. • Control strategy report (HVLC systems at kraft mills). • Control strategy report (bleaching systems participating in the Effluent Incentives Program) 	<p>60 Days Following Compliance Demonstration</p> <ul style="list-style-type: none"> • Methods used to determine compliance. • Results of performance tests and/or CMS performance evaluations. • Methods to be used to determine continuous compliance. • Type and quantity of HAP emitted. • Analysis demonstrating whether a major or area source. • Description of control equipment and efficiencies. • Statement as to whether source has complied with standard. • Data, calculations, engineering assessments, and manufacturer's recommendations used to determine operating parameter value.

FIGURE 11. RECORDKEEPING AND REPORTING REQUIREMENTS (§63.454, §63.455)

PERIODIC REPORTS	
<p>QUARTERLY (Excess Emissions)</p>	<ul style="list-style-type: none"> • Requirements specified in Subpart A • No additional requirements under Subpart S
<p>SEMI-ANNUALLY (No Excess Emissions)</p>	<ul style="list-style-type: none"> • Requirements specified in subpart A • Mills participating in the Effluent Incentives Program must report daily application rates of chlorine and hypochlorite
<p>BI-ANNUALLY</p>	<ul style="list-style-type: none"> • Mills with extended compliance schedules (some kraft pulping systems and for mills participating in the Effluent Incentives Program) must update control strategy reports

RECORDKEEPING
<ul style="list-style-type: none"> • Comply with recordkeeping requirements specified in Subpart A • Mills with closed-vent systems and/or closed collection systems shall prepare and maintain a site-specific inspection plan • Mills participating with the Effluent Incentives Program shall record daily average chlorine and hypochlorite application rates (kg/Mg ODP) • Mills shall record all CMS parameters included in the monitoring requirements (see Figures 8 and 9)